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IS 10714-44 (2006): Technical Drawings - General Principles of Presentation, Part 44: Sections on mechanical engineering drawings [PGD 24: Drawings]

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Satyanaaranay Gangaram Pitroda

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भारतीय मानक

तकनीकी ड्राइंग — प्रस्तुतीकरण के सामान्य सिद्धान्त

भाग 44 यांत्रिक इंजीनियरिंग ड्राइंग के खण्ड

*Indian Standard*

**TECHNICAL DRAWINGS — GENERAL PRINCIPLES  
OF PRESENTATION**

**PART 44 SECTIONS ON MECHANICAL ENGINEERING DRAWINGS**

ICS 01.100.01

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**BUREAU OF INDIAN STANDARDS**  
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## NATIONAL FOREWORD

This Indian Standard (Part 44) which is identical with ISO 128-44 : 2001 'Technical drawings — General principles of presentation — Part 44 : Sections on mechanical engineering drawings' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Drawings Sectional Committee and approval of the Production and General Engineering Division Council.

ISO 128 was published in 1982 and was accordingly adopted as IS 10714 : 1983. ISO 128 : 1982 was withdrawn and published again in several parts. In view of this Drawing Sectional Committee decided to adopt ISO 128-44 : 2001 as IS 10714 (Part 44).

This standard specifies general principles for presenting sections on mechanical engineering drawings following the orthographic projection methods specified in ISO 5456-2. For areas on sections, representation is according to ISO 128-50. The basic rules for cuts and sections are given in ISO 128-40.

Attention has also been given to the requirements of reproduction, including microcopying in accordance with ISO 6428.

The other parts of this series are given as follows:

IS 10714 (Part 20) : 2001 Technical drawings — General principles of presentation: Part 20 Basic conventions for lines

IS 10714 (Part 21) : 2001 Technical drawings — General principles of presentation: Part 21 Preparation of lines by CAD systems

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- Wherever the words, 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.
- Comma ( , ) has been used as a decimal marker while in Indian Standards, the current practice is to use a point ( . ) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their places are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 128-20 : 1996 Technical drawings — General principles of presentation — Part 20 : Basic conventions for lines	IS 10714 (Part 20) : 2001 Technical drawings — General principles of presentation: Part 20 Basic conventions for lines	Identical
ISO 5456-2 : 1996 Technical drawings — Projection methods — Part 2: Orthographic representations	IS 15021 (Part 2) : 2001 Technical drawings — Projection methods: Part 2 Orthographic representations	do
ISO 6428 : 1982 Technical drawings — Requirements for microcopying	IS 10164 : 1985 Requirements to execute technical drawings for microcopying	do

## *Indian Standard*

# TECHNICAL DRAWINGS — GENERAL PRINCIPLES OF PRESENTATION

## PART 44 SECTIONS ON MECHANICAL ENGINEERING DRAWINGS

### 1 Scope

This part of ISO 128 specifies general principles for presenting sections on mechanical engineering drawings following the orthographic projection methods specified in ISO 5456-2. For areas on sections, representation is according to ISO 128-50<sup>[1]</sup>.

Attention has also been given to the requirements of reproduction, including microcopying in accordance with ISO 6428.

NOTE The basic rules for cuts and sections are given in ISO 128-40<sup>[2]</sup>.

### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 128. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 128 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 128-20, *Technical drawings — General principles of presentation — Part 20: Basic conventions for lines*.

ISO 128-24:1999, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*.

ISO 128-40, *Technical drawings — General principles of presentation — Part 40: Basic conventions for cuts and sections*.

ISO 5456-2, *Technical drawings — Projection methods — Part 2: Orthographic representations*.

ISO 6428, *Technical drawings — Requirements for microcopying*.

ISO 10209-1, *Technical product documentation — Vocabulary — Part 1: Terms relating to technical drawings: general and types of drawings*.

ISO 10209-2, *Technical product documentation — Vocabulary — Part 2: Terms relating to projection methods*.

### 3 Terms and definitions

For the purposes of this part of ISO 128, the terms and definitions given in ISO 10209-1 and ISO 10209-2 apply.

## 4 General

In principle, ribs, fasteners, shafts, spokes of wheels and the like are not cut in longitudinal sections, and should therefore not be represented as sections.

Like views, sections may be shown in a position other than that indicated by the arrows for the direction of their viewing.

## 5 Cutting planes

A section in one plane is shown in Figure 1 and Figure 2.

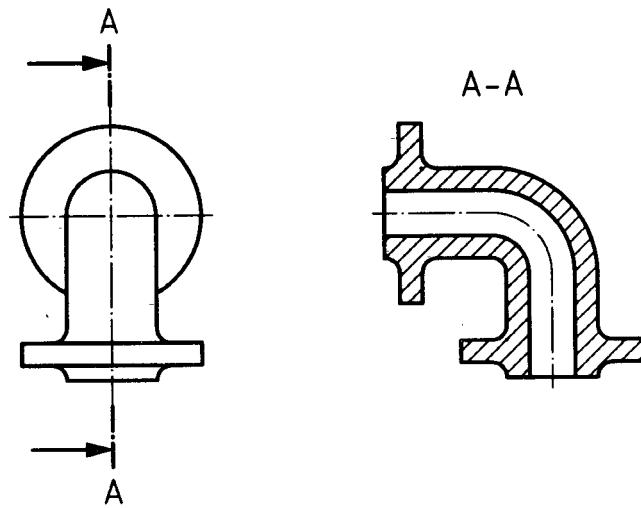


Figure 1 — Section in one plane

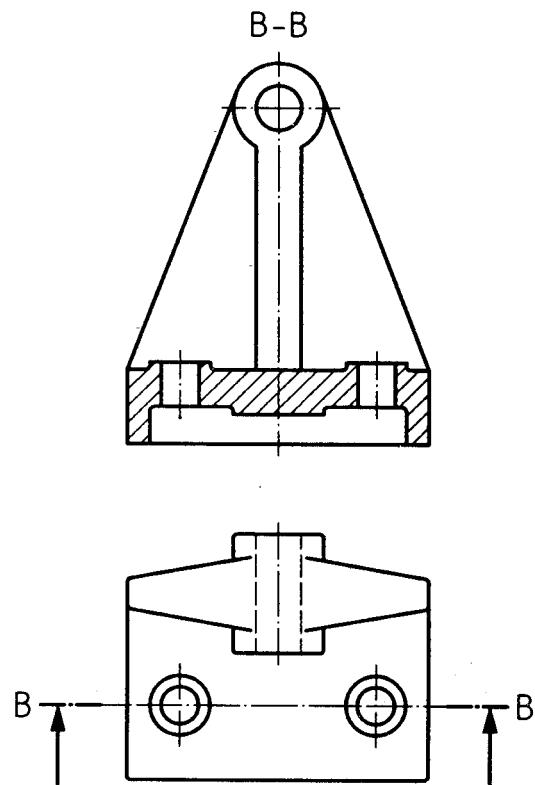


Figure 2 — Section in one plane

A section in two parallel planes is shown in Figure 3.

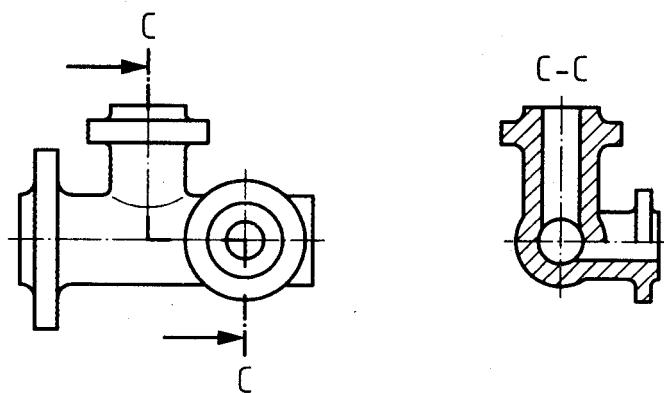
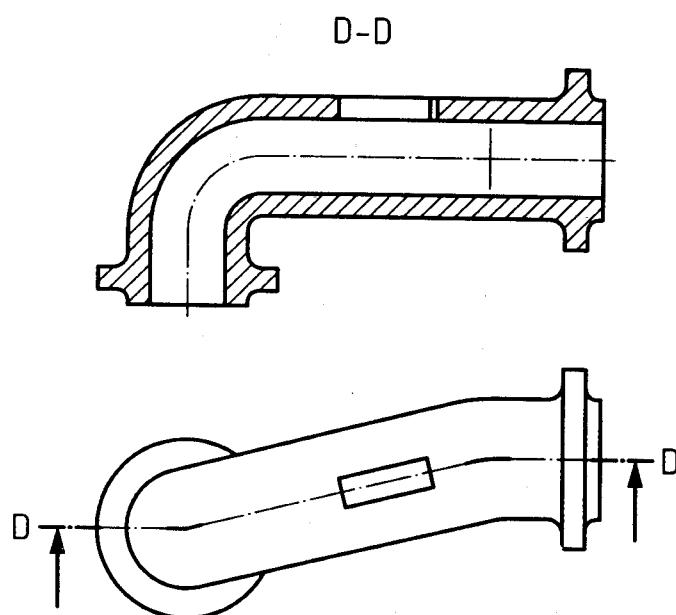


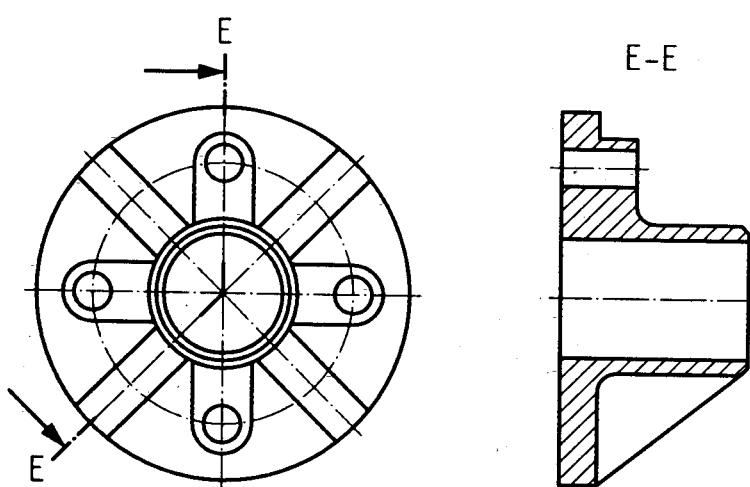
Figure 3 — Section in two parallel planes

A section in three contiguous planes is shown in Figure 4.



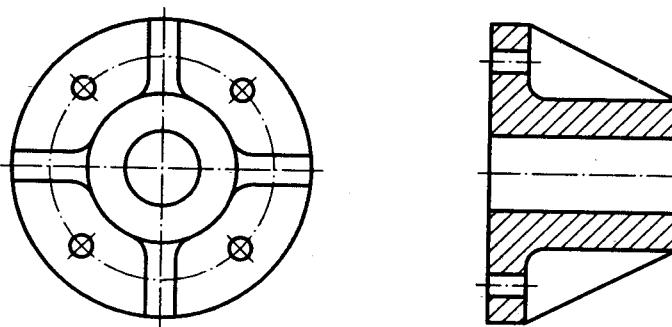
**Figure 4 — Section in three contiguous planes**

A section in two intersecting planes, one revolved into the plane of projection, is shown in Figure 5.



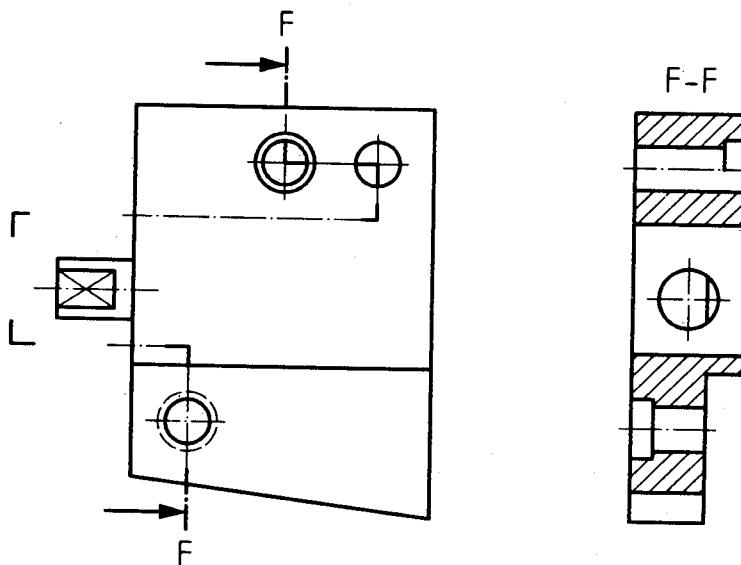
**Figure 5 — Section in two intersecting planes**

In the case of parts of a revolution containing regularly spaced details required to be shown in sections but not situated in the cutting plane, these details may be depicted rotated into the cutting plane, provided that no ambiguity can arise (see Figure 6). No additional identification is needed.



**Figure 6 — Section of part of revolution with regularly spaced details not in, but rotated into, the cutting plane**

When it is sometimes necessary to position the cutting plane partly outside the object, it is not, however, necessary to show the long-dashed dotted narrow line of type 04.1 specified in ISO 128-24:1999 (see Figure 7).



**Figure 7 — Cutting plane positioned partly outside object**

## 6 Removed sections

When sections are removed from a view, they shall be placed near that view and connected to it by the long-dashed dotted narrow line of type 04.1 specified in ISO 128-24:1999 (see Figure 8).

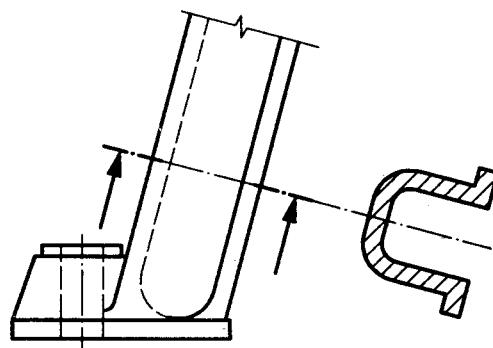


Figure 8 — Section removed from a view

## 7 Other sections

For sections revolved in the relevant view, as well as for sections of symmetrical parts and local sections: according to ISO 128-40.

## 8 Arrangement of successive sections

Successive sections may be arranged in a manner similar to the examples shown in Figures 9 to 11, in as much as it is suitable for the layout and understanding of the drawing.

Unless they contribute to the clarification of the drawing, outlines and edges behind the cutting plane may be omitted.

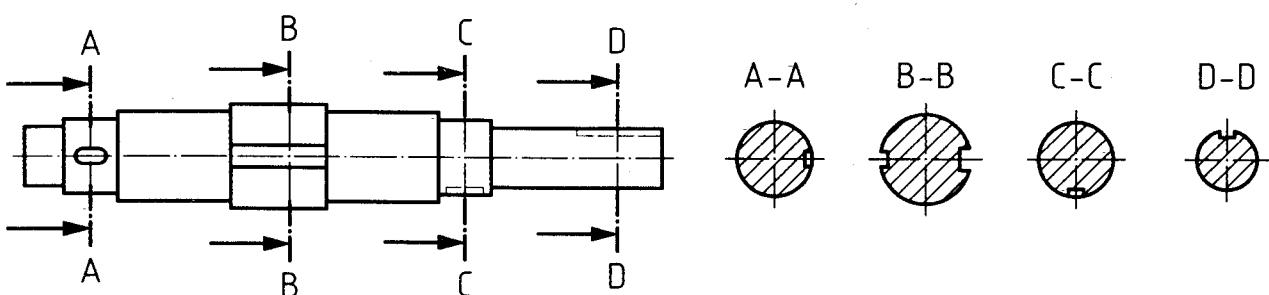


Figure 9 — Successive sections — Example 1

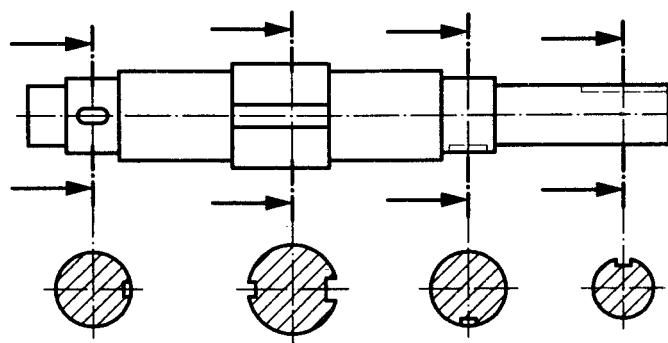


Figure 10 — Successive sections — Example 2

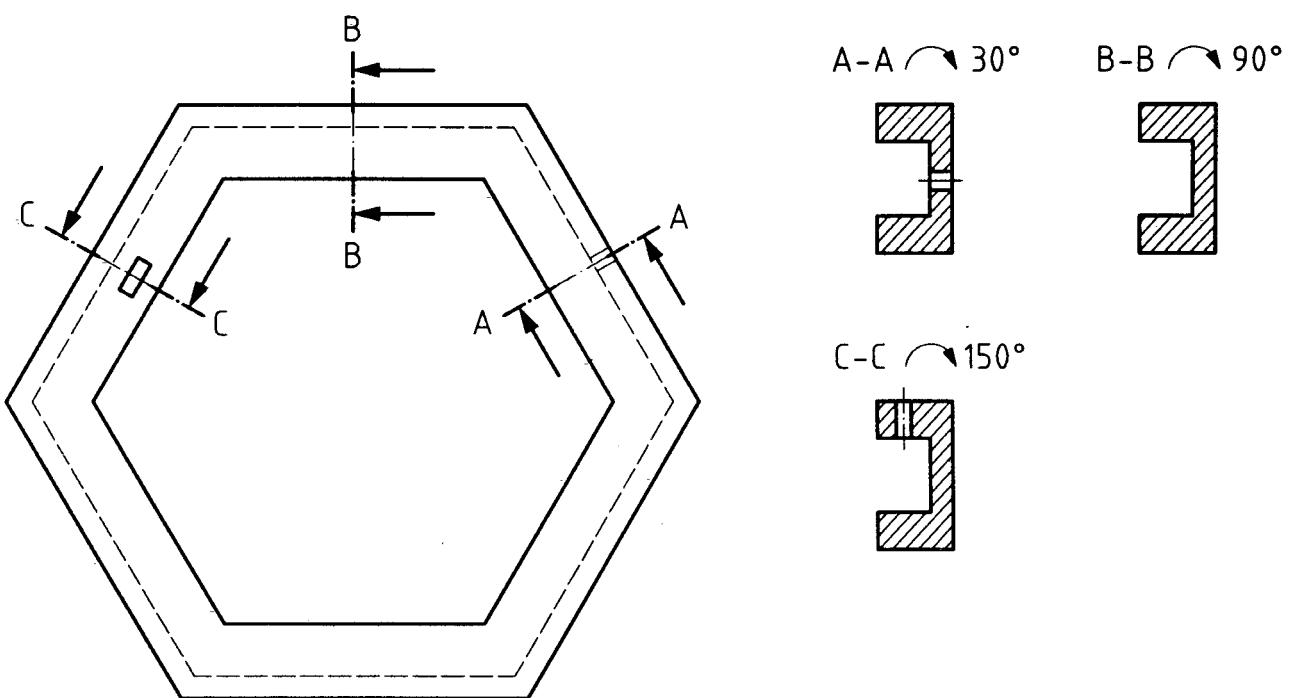


Figure 11 — Successive sections — Example 3

## Bibliography

[1] ISO 128-50, *Technical drawings — General principles of presentation — Part 50: Basic conventions for representing areas on cuts and sections.*

(Continued from second cover)

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 10209-1 : 1992 Technical product documentation — Vocabulary — Part 1 : Terms relating to technical drawings : General and types of drawings	IS 8930 (Part 1) : 1995 Technical product documentation — Vocabulary: Part 1 Terms relating to technical drawings: General and types of drawings	Identical
ISO 10209-2 : 1993 Technical product documentation — Vocabulary — Part 2 : Terms relating to projection methods	IS 8930 (Part 2) : 2001 Technical product documentation — Vocabulary: Part 2 Terms relating to projection methods	do

The technical committee responsible for formulation of this standard had reviewed the provisions of the following International Standards to which references have been made in the text and decided that they are acceptable for use in conjunction with this standard:

<i>International Standard</i>	<i>Title</i>
ISO 128-24 : 1999	Technical drawings — General principles of presentation — Part 24 : Lines on mechanical engineering drawings
ISO 128-40 : 2001	Technical drawings — General principles of presentation — Part 40 : Basic conventions for cuts and sections

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : PG 24/MGP 24 (0525).

#### **Amendments Issued Since Publication**

Amend No.	Date of Issue	Text Affected

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